Swanson, Greg

From: Poole, Eric
Sent: Monday, May 06, 2002 3:33 PM
To: Swanson, Greg
Subject: RE: RSRM Nozzle Information for FCB Review

I have no problem with #3, the 90 degree cut off, and #2, the additional testing. On the criticality issue, I'm a little fuzzy. The phenolics are not and should not be considered fracture critical. As long as the bondline holds, those parts can split to pieces and we're still fine. As for the bondline, page 4 of that presentation shows some logic for deciding criticality. One block has low mass, constrained, and failsafe as a decision gate. The part is not low mass, is constrained, and may be failsafe. Page 14 shows the logic for calling it failsafe.

According to the letter of the law as laid out here, I would have to agree that the bondline is not fracture critical. So I could live with not calling it fracture critical. However, if we did have a bondline failure, I think things could easily get bad in a hurry, so it's definitely an area to keep track of. So I wouldn't mind having the bondline get the special attention that goes along with being fracture critical.

Either way, we're going to keep analyzing the fracture of these parts and keep pushing for better material data and analytical techniques. So I don't know if it's worth the hassle of shoving fracture critical down their throats. So far they have been good about paying attention to the bond lines without the designation. But everything has been fine so far. I don't know if they would continue to take fracture as seriously if it came down to a choice between believing fracture analysis and keeping hardware on schedule.

Sorry to waffle so heavily, but I'm really not too sure how this issue should go.

-----Original Message-----
From: Swanson, Greg
Sent: Monday, May 06, 2002 3:03 PM
To: Poole, Eric
Subject: FW: RSRM Nozzle Information for FCB Review

Eric,

This ok with you?

Greg

-----Original Message-----
From: Masterson, Sara
Sent: Friday, April 19, 2002 2:16 PM
To: Aggarwal, Pravin; Bonine, Lisa; Bryson, Craig; Gregg, Wayne; McGill, Preston; Russell, Sam; Swanson, Greg; Wells, Doug
Subject: RSRM Nozzle Information for FCB Review

FCB Members,

The attached presentations are responses to three action items received at a TIM with the MSFC FCB in October of 2001 (The action items are documented in memo ED22-01-153 from Greg Swanson to Mike Rudolphi). They describe the fracture techniques used to analyze RSRM nozzle phenolics and bondlines. The "Introduction" presentation briefly explains the three action items and also answers action item three about the 90 degree Fahrenheit limit on material property testing and analysis. The presentation titled "Fracture Control of RSRM Nozzle Phenolics and Bond Lines" addresses action item 1 on the fracture criticality phenolics and bond. The last presentation entitled "RSRM Nozzle Bond Line Fracture Verification" discusses some work accomplished on action item number 2.

Please review these presentations and submit any comments to me by Monday, May 6th, if possible.

Thanks,

Sara

Sara Masterson
ED22/Strength Analysis Group

sara.masterson@msfc.nasa.gov

<< File: Introduction.ppt >> << File: Phenolics & Bonds FCI.ppt >> << File: Fracture Verification.ppt >>